Laser Distance Meter
Laser-Distanzmesser
Laser distance-mètre
Metro di distanza laser
Medidor Láser de Distancia

User Manual

Please read this manual before switching the unit on.
Important safety information inside.

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The compact and handy base model was specifically designed for indoor applications. Shortcut and Soft grip keys for addition, subtraction, area and volume calculation make measuring fast and very reliable.

1.Safety Instruction

Permitted Use

- Measuring distances
- Computing functions, e. g. areas and volumes

Prohibited Use

- Using the instrument without instruction
- Using outside the stated limits
- Deactivation of safety systems and removal of explanatory and hazard labels
- Opening of the equipment by using tools (screwdrivers, etc.), as far as not specifically permitted for certain cases
- Carrying out modification or conversion of the product
- Use of accessories from other manufacturers without the express approval of CEM Technology.
- Deliberate or irresponsible behavior on scaffolding, when using ladders, when measuring near machines which are running, or near parts of machines or installations which are unprotected
- Aiming directly into the sun
- Inadequate safeguards at the surveying site (e.g. when measuring on roads, construction sites, etc.)

Laser Classification

The CEM produced a visible laser beam which emerges from the front of the instrument.

Laser Class 2 products:

Do not stare into the laser beam or direct it towards other people unnecessarily. Eye's protection is normally afforded by aversion responses including the blink reflex.

⚠ WARNING:

Looking directly into the beam with optical aids
(e.g. binoculars, telescopes) can be hazardous.

Precautions:

Do not look directly into the beam with optical aids.

⚠ CAUTION:

Looking into the laser beam may be hazardous to the eyes.

Precautions:

Do not look into the laser beam. Make sure the laser is aimed above or below eye level.

2.Start-Up

Inserting/Replacing Batteries (See "Figure A")

1) Remove battery compartment lid.
2) Insert batteries, observing correct polarity.
3) Close the battery compartment again.

- Replace the batteries when the symbol "⎓" flashes permanently in the display.
- Use alkaline batteries only.
- Remove the batteries before any long period of non-use to avoid the danger of corrosion

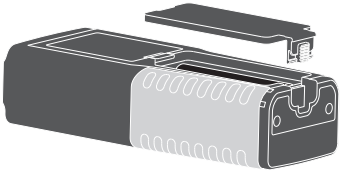


Figure A

Keypad (See "Figure B")

1- **ON/MEAS** button
2- **Area/Volume** button
3- **Indirect measurement** button
4- **Single/Continous Distance measurement** button
5- **Plus** (+) button
6- **Minus** (−) button
7- **Storage** button
8- **Reference** button
9- **Illuminating/UNITS** button
10- **Clear/Off** button

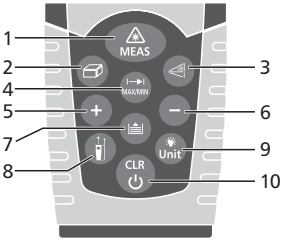


Figure B

LCD Display (See "figure C")

1- Laser active
2- Reference level (front)
3- Reference level (rear)
4- Variable measuring functions
- Area measurement
- Volume measurement
- Indirect measurement
- Indirect (second) measurement

5- Single distance measurement
6- Battery status
7- Historical memory
8- Instrument error warning
9- Continuous measurement & Max and Min measurement
10- First value display line
11- Second value display line
12- Summary line for last measure or calculation result

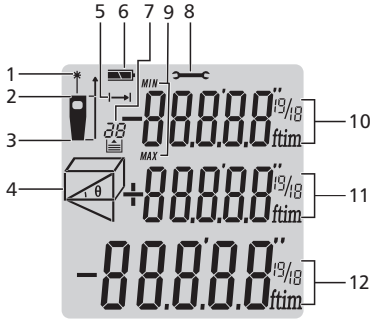


Figure C

3.Initial Operation and Setting

Switching On and Off

MEAS Switches on the instrument and laser.

CLR Press this button longer to switch off the instrument.
The instrument switches off automatically after three minutes of inactivity.

Clear Button

CLR The last action is cancelled or the data display is cleared. If in the mode of History storage, press Storage button and Clear button simultaneously will clear all storage data in the memory.

Reference Level Setting (See "Figure D")

The default reference setting is from the rear of the instrument.
Press this button to take the selection from the front edge ,
A special beep sounds whenever the reference setting is changed.
After a re-startup the reference returns automatically to the default setting (rear reference).

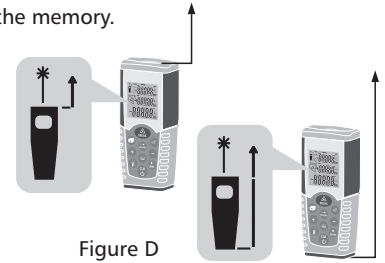


Figure D

Display Illumination

Unit Click illumination/UNITS button of the display can be switched on or off, user can trigger the function when he/she is in darkness situation. The value is clear visible on the LCD

Distance Unit Setting For Instrument

Unit Click the button longer to change the next type of unit, **m, ft. in, ft+in** then continue to click the button for the next unit selection

4.Measuring

Single Distance Measurement

MEAS Press to activate the laser.

Press again to trigger the distance measurement. The measured value is displayed immediately.

Continuous Measurement (Tracking) & Max and Min Measurement (See "Figure E")

The continuous measurement function (tracking) is used for the transferring of measurements, e.g., from construction plans. In continuous measurement mode, the measuring tool can be moved to the target, whereby the measured value is updated approx. every 0.5 seconds in the third line. The corresponding minimum and maximum values are displayed dynamically in the first and second line. As an example, the user can move from a wall to the required distance, while the actual distance can be read continuously. For continuous measurement, push button MAX/MIN until the indicator for continuous measurement appears in the display. And press MEAS or Clear button again to stop the function. The function is terminated automatically after continuous 100 times measurement.

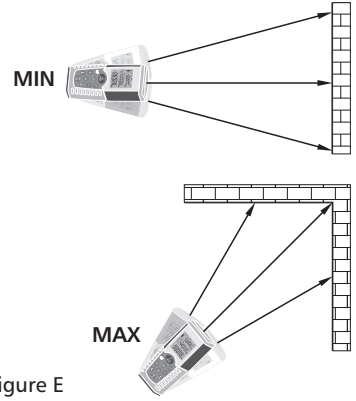


Figure E

5.Functions

Addition / Subtraction

Distance measuring.

+ The next measurement is added to the previous one.

− The next measurement is subtracted from the previous one.

CLR The last step is cancelled.

MAX/MIN Return to the single distance measurement

Area Measurement

Press the Area/Volume button. The ▱ symbol appears in the display.

Press MEAS button to take the first length measurement (e.g. length).

Press MEAS again to take the second length measurement (e.g. width).

The result of the area measurement is displayed in the third line, the individually measured values are displayed in lines 1 and 2.

Volume Measurement

For volume measurements, push Area/Volume button, twice until the indicator for volume measurement appears in the display. Afterwards,

press to takes first distance measurement (e.g. length)

press to takes second distance measurement(e.g. width)

The result of the area measurement from the values already measured is displayed in the summary line.

Press to takes the third distance measurement(e.g. height). The value is displayed in the second line.

The result of the area measurement is displayed in the third line, the two previously measured values in lines 1 and 2.

Indirect Measurement

Indirect measurement - determining a distance using 2 auxiliary measurements. (See "Figure G").
e.g. when measuring heights that require the measurement of two or three measurements as following step:
Press this button once, the display shows. The distance to be measured flashes in the symbol.
MEAS Aim at the upper point (1) and trigger the measurement.
After the first measurement the value is adopted. Keep the instrument as horizontal as possible.
MEAS Press to measurement the distance result of the horizontal point (2).
The result of the function is displayed in the summary line.

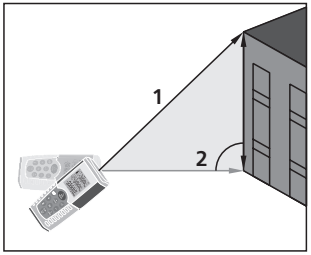


Figure G

Indirect Measurement - Determining a Distance Using 3 Measurements (See"Figure H")

Press this button twice; the display shows the symbol. The distance to be measured flashes in the symbol.

MEAS Aim at the lower point (1) and trigger the measurement. After the first measurement the value is adopted. Keep the instrument as horizontal as possible.

MEAS Press to measurement the distance result of the horizontal point (2).

MEAS Press to measurement the distance result of the upper point (3).

The result of the function is displayed in the summary line.

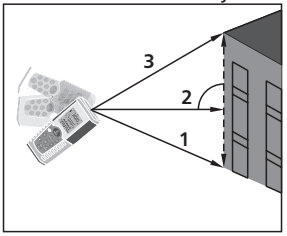


Figure H

Historical Storage

the previous 20 records (measurements or calculated results) are shown in the reverse order. Use the + or − buttons to navigate through these records.

You can clear all records by press Storage button and Clear button simultaneously in historical storage mode.

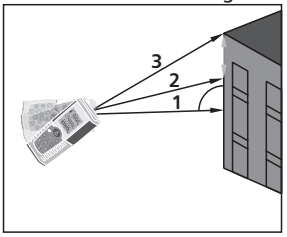


Figure I

6.Technical Data

Technical Specifications	
Range	0.05 to 35 m*(0.16 ft to 164 ft*)
Measuring accuracy up to 10m (2 σ , standard deviation)	Typically: ±1.5 mm** (± 0.06 in**)
Measuring units	m,in,ft
Laser Class	Class II
Laser Type	635 nm, <1mW
Area, Volume Calculations	•
Indirect measurement using Pythagoras	•
Addition/Subtraction	•
Continuous Measurement	•
Min/Max Distance Tracking	•
Display illumination and multi-line display	•
Beep indication	•
Dust Protect/Splash proof	IP 54
History measurement records	10

Keyboard Type	Super Soft-Touch (Long life)
Operating Temperature	0°C to 40°C(32°F to 104°F)
Storage Temperature	-10°C to 60°C(14°F to 140°F)
Battery Life	up to 4,000 measurements
Batteries	Type AAA 2 x 1.5V
Auto. laser switch-off	after 0.5 min
Auto instrument switch-off	after 3 min
Dimension	115 x 48 x 28 mm
Weight	135g

* Use a target plate to increase the measurement range during daylight or if the target has poor reflection properties!
** in favourable conditions (good target surface properties, room temperature) up to 10 m (33 ft). In unfavourable conditions, such as intense sunshine, poorly reflecting target surface or high temperature variations, the deviation over distances above 10 m (33 ft) can increase by ± 0.15 mm/m (± 0.0018 in/ft).

7.Troubleshooting – Causes and Corrective Measures

Code	Cause	Corrective measure
204	Calculation error	Repeat procedure
208	Received signal too weak, measurement time too long. Distance >50m	Use target plate
209	Received signal too strong	Target too reflective(use target plate)
252	Temperature too high	Cool down instrument
253	Temperature too low	Warm up instrument
255	Hardware error	Switch on/off the device several times, If the symbol still appears, please contact your dealer for assistance.

8.Measuring Sonditions

Measuring Range

The range is limited to **35**m.

At night or dusk and if the target is in shadow the measuring range without target plate is increased. Use a target plate to increase the measurement range during daylight or if the target has poor reflection properties.

Target Surfaces

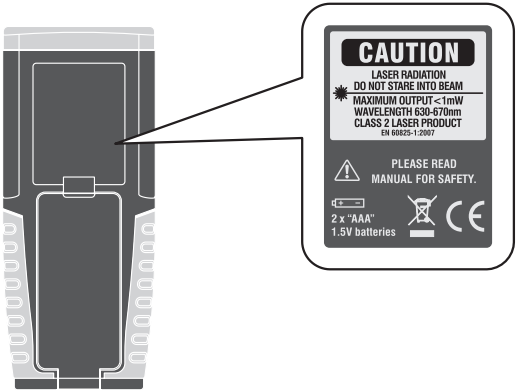
Measuring errors can occur when measuring toward colorless liquids (e.g. water) or dust free glass, Styrofoam or similar semi-permeable surfaces. Aiming at high gloss surfaces may deflect the laser beam and lead to measurement errors.

Against non-reflective and dark surfaces the measuring time may increase.

Care

Do not immerse the instrument in water. Wipe off dirt with a damp, soft cloth. Do not use aggressive cleaning agents or solutions. Handle the instrument as you would a telescope or camera.

9.Labelling


CAUTION
LASER RADIATION
DO NOT STARE INTO BEAM
MAXIMUM OUTPUT <1mW
WAVELENGTH 630-670nm
CLASS 2 LASER PRODUCT
EN 60825-1:2007
PLEASE READ
MANUAL FOR SAFETY.
2 x "AAA"
1.5V batteries
CE

Rev.120511